



Carbon Capture Demonstration Projects Program Front-End Engineering Design (FEED) Studies

The Carbon Capture Demonstration Projects Program, managed by the U.S. Department of Energy's (DOE) Office of Clean Energy Demonstrations (OCED), aims to de-risk integrated carbon capture and storage (CCS) demonstrations and catalyze significant follow-on investments from the private sector for commercial-scale, integrated CCS demonstrations on carbon emissions sources across industries in the United States. To advance CCS demonstrations, OCED sought applications to execute and complete front-end engineering design (FEED) studies for prospective integrated carbon capture, transport (if required) and storage systems projects. OCED awarded this FEED study in December 2023.

CCS FEED Study Awardee

Entergy Services, LLC: Lake Charles Power Station Integrated CO₂ Capture Project

Project At A Glance

- » **Project Total:** \$17,265,095*
- » **OCED Award Amount:** \$8,632,575
- » **Total Potential Carbon Savings:** 2.5 million metric tons of CO₂ per year
- » **Project Synopsis:** Develop a FEED analysis for an integrated carbon capture, transport, and storage project at the Lake Charles Power Station
- » **Awardee:** Entergy Services, LLC drives this project on behalf of Entergy subsidiary Entergy Louisiana, a utility company that provides electricity, natural gas, and other services to residential and business customers in Louisiana
- » **Project Locations:** Lake Charles Power Station; Westlake, Louisiana
- » **Project Start Date:** January 2024

*For FEED study only.

About This Project

OCED is working with Entergy Services, LLC to complete a FEED study to develop a full-scale integrated carbon capture project for Entergy Louisiana's natural gas combined cycle power plant at Lake Charles Power Station. The proposed analysis will investigate the cost of retrofitting a post-combustion carbon capture technology using Mitsubishi Heavy Industries' state-of-the-art KS-21™ solvent. This technology has the potential to capture a minimum of 95% of the carbon dioxide (CO₂) emissions from the plant, equating to nearly 2.5 million tons of CO₂ per year. Entergy Services, LLC has partnered with Talos Energy, Inc. (Talos) to develop an offtake agreement.

As part of this arrangement, Talos will investigate the development of a sequestration site approximately 40 miles from the Lake Charles Power Station and a pipeline to transport the captured carbon to the sequestration site for secure storage.

The project will include project management, community benefits work, a carbon capture FEED study, CO₂ transportation FEED study, storage field development plan, initiation of the National Environmental Policy Act process, and the necessary permits for carbon storage.

The U.S. Department of Energy established OCED to help scale the emerging technologies needed to tackle our most pressing climate challenges and achieve net-zero emissions by 2050. OCED's mission is to deliver clean energy demonstration projects at scale in partnership with the private sector to accelerate deployment, market adoption, and the equitable transition to a decarbonized energy system.

Entergy Services, LLC CCS FEED Study

Project Fact Sheet

Project Site

The Lake Charles Power Station is located in Calcasieu Parish in Westlake, Louisiana. The project will develop a full-scale integrated carbon capture project for Entergy Services, LLC's natural gas combined cycle power plant at Lake Charles Power Station.

Community Benefits Plan

A key deliverable for this project includes a Community Benefits Plan (CBP), informed and developed in consultation with the project community. To mitigate potential impacts of this project and maximize its benefits, the CBP will promote equity and inclusion through detailed plans to:

- Reduce atmospheric pollution.
- Create both temporary construction jobs and permanent operations jobs, that will flow directly to nearby communities in southwest Louisiana, providing highly skilled, good-paying jobs, and assisting in the transformation and revitalization of those communities.
- Benefit the organizations that represent and serve disadvantaged communities in the area with whom Entergy Services, LLC has long-established relationships.

Replicability

More than 335 million residents in the United States depend on the energy grid to reliably generate an average of 4 trillion kilowatt hours of power annually, but much of the power generation system relies on fossil fuels to operate. Carbon capture and storage is one important solution that can help reduce carbon emissions and their impact on the environment without sacrificing the reliable power generation that Americans need to thrive. Through conducting carbon capture and storage demonstrations, OCED envisions the technology being replicated at power generation plants all over the country, significantly reducing carbon emissions.

To learn more about Carbon Management you can access DOE's [Pathways to Commercial Liftoff](#) report or visit the [Carbon Management](#) section on the OCED website.



Contact

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More Resources

Website: energy.gov/oced/CCFEEDs

Office of Clean Energy Demonstrations:
energy.gov/oced

Carbon Management Interactive Graphic:
edx.netl.doe.gov/carbonstorage/interactive-graphic/

